

From: [Satya Dwivedula](#)
To: ["Jennifer Sampson"](#)
Cc: [Sanchez, Carlos](#); [Meyer, John](#); [David Keith](#); [Philip J Slowiak](#); [Dave Moreira \(dmoreira@wm.com\)](#); [monica.harris@tceq.texas.gov](#); [Craig Watts](#); [Miller, Gary](#)
Subject: RE: Qs on Texas Water Quality Standards
Date: Monday, September 14, 2015 12:21:03 PM

Good afternoon Jennifer,

Here are responses to your questions on Texas Surface Water Quality Standards (TSWQS) and groundwater to surface water protective concentration levels (^{SW}GW PCLs).

TSWQS

TSWQS are no longer tissue-based, and the guidance document you referenced is no longer current. As you know, rules supersede the guidance. TSWQS were revised in 2014, and one of the changes was, the dioxin human health criteria are based on water column concentrations rather than the tissue concentrations. As you noted, TCEQ evaluates whether or not include water bodies on Clean Water Act (CWA) §303(d) list based on the long-term average of the data for each assessment unit within the waterbody; not necessarily the waterbody as a whole. For example, the Houston Ship Channel Tidal, Segment 1006, has seven separate assessment units. The data is evaluated from the monitoring station(s) within each assessment unit to determine if the human health criteria are being met within that portion of the waterbody. This way, the TCEQ can evaluate localized impacts to portions of larger waterbodies.

^{SW}GW PCLs

As you mentioned, the default groundwater to surface water dilution factor for a tidal water body is 0.15 per TRRP. Normally, use of Tier 2 or Tier 3 groundwater to surface water dilution factor would be an option. However, use of a dilution factor is not an option for this site because TCEQ rules* do not allow dilution for releases into impaired water bodies in the CWA §303(d) list, and the site is located in a segment** that is included on the CWA §303(d) list. Therefore, the dilution factor allowed for the site is 1.0 (i.e., no dilution). This is discussed further in § 7.1.2.3 of the TRRP guidance document [TRRP-24](#).

*Please see 30 Texas Administrative Code (TAC) § 350.75 (i)(4)(A)

**The site is located in Segment No. 1001, San Jacinto River Tidal. Segment 1001 stretches from Lake Houston Dam to a point 100 meters downstream of IH-10. Segment No. 1001 is listed on the 2012 CWA §303(d) list, which was approved by the USEPA Region 6 for dioxin in edible tissue. The next segment down (Segment No. 1005) is also listed on CWA §303(d) for dioxin in edible tissue.

Please let me know if you have any questions. Thanks.

Satya

From: Jennifer Sampson [mailto:jsampson@integral-corp.com]
Sent: Thursday, September 10, 2015 3:06 PM
To: Satya Dwivedula; Gary Miller (miller.garyg@epa.gov) (miller.garyg@epa.gov)
Cc: Carlos Sanchez (Sanchez.Carlos@epamail.epa.gov); meyer.john@epa.gov; David Keith; Philip J



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Slowiak; Dave Moreira (dmoreira@wm.com)
Subject: Qs on Texas Water Quality Standards

Dear Gary and Satya-

I wanted to follow up from our conversation last week when we met at EPA's office in Dallas. As you know, EPA's request for additional data specifies that detection limits for groundwater, surface water and porewater must be less than the state's water quality standard for dioxins and furans. Because of this specification, the technical challenges in meeting it, and the need for us to articulate all the details in our sampling and analysis plans (SAPs), we wanted to better understand how results at this very high level of resolution fit into EPA's expectations. In this process, I looked into how the state addresses attainment for this standard.

Using the final rule, section §307.9(e)(4) Determination of Standards Attainment, indicates that assessment of attainment is explained in updated guidance. From the final rule:

§307.9. Determination of Standards Attainment.

- (e) (4) Toxic materials. Standards attainment must be evaluated in accordance with §307.6 of this title, and in accordance with §307.8 of this title (relating to Application of Standards). To protect aquatic life, specific numerical acute toxic criteria are applied as 24-hour averages, and specific numerical chronic toxic criteria are applied as seven-day averages. Human health criteria are applied as long-term average exposure criteria designed to protect populations over a life time. Standards attainment for acute and chronic toxic criteria for aquatic life and human health criteria must be in accordance with the TCEQ *Guidance for Assessing and Reporting Surface Water Quality in Texas as amended*. Standards attainment for human health criteria must be based on the mean of samples collected in accordance with the TCEQ *Guidance for Assessing and Reporting Surface Water Quality in Texas as amended*.

We looked at the 2014 Guidance document referenced. From Chapter 3, page 3-34, we find the following text.

Human Health Fish Tissue Criteria Concerns

In the 2014 IR, revised fish tissue criteria will be used to identify fish consumption use concerns. Criteria in the EPA-approved 2010 TSWQS that are expressed in terms of fish-tissue concentrations (Dioxins/Furans, 4,4' DDT, 4,4' DDE, 4,4' DDD, and Polychlorinated Biphenyls) will be assessed as follows.

When the average of 10 or more samples collected over a 7-10 year period exceeds the criterion, a concern will be identified. Once a water body has a concern identified for any parameter for which there is a fish tissue criterion, the DSHS will be notified that this water body is a high priority for a risk assessment to determine if a fish advisory is appropriate. The water body will remain a concern until such time a DSHS risk assessment is conducted. If a DSHS risk assessment results in a fish advisory or ban, then the water body will be listed as impaired on the 303(d) List at the earliest opportunity....

In this context, it does not appear that the state uses water chemistry data in a localized area to understand standards attainment. Instead, attainment is evaluated at the level of the "water

quality segment”, i.e., the water quality management unit, using data for fish tissue collected across 7 – 10 years. In this context, it’s not clear how the very low detection limits specified by EPA would be useful to TCEQ or EPA. Can you clarify?

To better understand EPA’s direction on meeting surface water standards in analysis of groundwater samples, I looked at the 2010 Texas Risk Reduction Program (TRRP). In the Texas Administrative Code, Chapter 350, Subchapter D: Development of Protective Concentration Levels §§350.71 – 350.79. In here, where derivation of groundwater-to-surface water PCLs are discussed, the state presents a dilution factor to be applied in derivation of PCLs for groundwater discharging to an estuary. As I understand it, we would be thinking about a Tier 3 PCL. In §350.75(i)(4)(C), this rule specifies a dilution factor of 0.15. Specifically: “The person shall set ^{SW}GW equal to ^{SW}SW divided by the surface water dilution factor.” In this case, I would understand the lowest level necessary to address groundwater quality to be $0.0797 \text{ pg/L} \div 0.15 = 0.5 \text{ pg/L}$. Is this interpretation correct?

Thanks very much for your help with this.

Jennifer

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